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TECH CENTER 1600/2900

## SEQUENCE LISTING

<110> Liedtke, Wolfgang  
Heller, Stefan  
Hudspeth, Albert J.  
Friedman, Jeffrey M.

<120> VR-OAC, AN OSMOTICALLY ACTIVATED CHANNEL PROTEIN, NUCLEIC ACIDS ENCODING IT, AND USES THEREOF

<130> 600-1-287N

<140> US 10/027,828

<141> 2001-10-25

<150> US 60/243,568

<151> 2000-10-26

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<170> PatentIn version 3.1

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| Asn | Met | Lys | Val | Cys | Asn | Glu | Asp | Gln | Thr | Asn | Cys | Thr | Val | Pro | Thr |  |  |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |  |  |
| Tyr | Pro | Ser | Cys | Arg | Asp | Ser | Glu | Thr | Phe | Ser | Thr | Phe | Leu | Leu | Asp |  |  |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |  |  |
| Leu | Phe | Lys | Leu | Thr | Ile | Gly | Met | Gly | Asp | Leu | Glu | Met | Leu | Ser | Ser |  |  |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |  |  |
| Thr | Lys | Tyr | Pro | Val | Val | Phe | Ile | Ile | Leu | Leu | Val | Thr | Tyr | Ile | Ile |  |  |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |  |  |
| Leu | Thr | Phe | Val | Leu | Leu | Leu | Asn | Met | Leu | Ile | Ala | Leu | Met | Gly | Glu |  |  |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |  |  |
| Thr | Val | Gly | Gln | Val | Ser | Lys | Glu | Ser | Lys | His | Ile | Trp | Lys | Leu | Gln |  |  |
|     |     |     | 725 |     |     |     |     | 730 |     |     |     |     |     | 735 |     |  |  |
| Trp | Ala | Thr | Thr | Ile | Leu | Asp | Ile | Glu | Arg | Ser | Phe | Pro | Val | Phe | Leu |  |  |
|     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |     |  |  |
| Arg | Lys | Ala | Phe | Arg | Ser | Gly | Glu | Met | Val | Thr | Val | Gly | Lys | Ser | Ser |  |  |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |  |  |
| Asp | Gly | Thr | Pro | Asp | Arg | Arg | Trp | Cys | Phe | Arg | Val | Asn | Glu | Val | Asn |  |  |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |  |  |
| Trp | Ser | His | Trp | Asn | Gln | Asn | Leu | Gly | Ile | Ile | Asn | Glu | Asp | Pro | Gly |  |  |
| 785 |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     |     | 800 |  |  |
| Lys | Asn | Glu | Thr | Tyr | Gln | Tyr | Tyr | Gly | Phe | Ser | His | Thr | Val | Gly | Arg |  |  |
|     |     |     |     | 805 |     |     |     |     | 810 |     |     |     |     | 815 |     |  |  |
| Leu | Arg | Arg | Asp | Arg | Trp | Ser | Ser | Val | Val | Pro | Arg | Val | Val | Glu | Leu |  |  |
|     |     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |  |  |
| Asn | Lys | Asn | Ser | Asn | Pro | Asp | Glu | Val | Val | Val | Pro | Leu | Asp | Ser | Met |  |  |
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Pro Asn Leu Arg Met Lys Phe Gln Gly Ala Phe Arg Lys Gly Val Pro  
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Cys Ala Arg Leu Phe Pro Asp Ser Asn Leu Glu Ala Val Leu Asn Asn  
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Asp Gly Leu Ser Pro Leu Met Met Ala Ala Lys Thr Gly Lys Ile Gly  
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His Leu Ser Arg Lys Phe Lys Asp Trp Ala Tyr Gly Pro Val Tyr Ser  
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Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg His Glu  
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|---|-----|-----|--|-----|--|-----|
| 625   |     | 630 |  | 635 |  | 640 |
| Asn Met Lys Val Cys Asn Glu Asp Gln Thr Asn Cys Thr Val Pro Thr |     |     |  |     |  |     |
|   | 645 |     |  | 650 |  | 655 |
| Tyr Pro Ser Cys Arg Asp Ser Glu Thr Phe Ser Thr Phe Leu Leu Asp |     |     |  |     |  |     |
|   | 660 |     |  | 665 |  | 670 |
| Leu Phe Lys Leu Thr Ile Gly Met Gly Asp Leu Glu Met Leu Ser Ser |     |     |  |     |  |     |
|   | 675 |     |  | 680 |  | 685 |
| Thr Lys Tyr Pro Val Val Phe Ile Ile Leu Leu Val Thr Tyr Ile Ile |     |     |  |     |  |     |
|   | 690 |     |  | 695 |  | 700 |
| Leu Thr Phe Val Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu |     |     |  |     |  |     |
|   | 705 |     |  | 710 |  | 715 |
| Thr Val Gly Gln Val Ser Lys Glu Ser Lys His Ile Trp Lys Leu Gln |     |     |  |     |  |     |
|   | 725 |     |  | 730 |  | 735 |
| Trp Ala Thr Thr Ile Leu Asp Ile Glu Arg Ser Phe Pro Val Phe Leu |     |     |  |     |  |     |
|   | 740 |     |  | 745 |  | 750 |
| Arg Lys Ala Phe Arg Ser Gly Glu Met Val Thr Val Gly Lys Ser Ser |     |     |  |     |  |     |
|   | 755 |     |  | 760 |  | 765 |
| Asp Gly Thr Pro Asp Arg Arg Trp Cys Phe Arg Val Asp Glu Val Asn |     |     |  |     |  |     |
|   | 770 |     |  | 775 |  | 780 |
| Trp Ser His Trp Asn Gln Asn Leu Gly Ile Ile Asn Glu Asp Pro Gly |     |     |  |     |  |     |
|   | 785 |     |  | 790 |  | 795 |
| Lys Asn Glu Thr Tyr Gln Tyr Tyr Gly Phe Ser His Thr Val Gly Arg |     |     |  |     |  |     |
|   | 805 |     |  | 810 |  | 815 |
| Leu Arg Arg Asp Arg Trp Ser Ser Val Val Pro Arg Val Val Glu Leu |     |     |  |     |  |     |
|   | 820 |     |  | 825 |  | 830 |
| Asn Lys Asn Ser Asn Pro Asp Glu Val Val Val Pro Leu Asp Ser Met |     |     |  |     |  |     |
|   | 835 |     |  | 840 |  | 845 |
| Gly Asn Pro Arg Cys Asp Gly His Gln Gln Gly Tyr Pro Arg Lys Trp |     |     |  |     |  |     |
|   | 850 |     |  | 855 |  | 860 |

Arg Thr Asp Asp Ala Pro Leu  
865 870

<210> 5  
<211> 461  
<212> PRT  
<213> Rattus norvegicus  
  
<400> 5

Tyr Gly Pro Val Tyr Ser Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr  
1 5 10 15

Cys Gly Glu Glu Val Ser Val Leu Glu Ile Leu Val Tyr Asn Ser Lys  
20 25 30

Ile Glu Asn Arg His Glu Met Leu Ala Val Glu Pro Ile Asn Glu Leu  
35 40 45

Leu Arg Asp Lys Trp Arg Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn  
50 55 60

Val Val Ser Tyr Leu Cys Ala Met Val Ile Phe Thr Leu Thr Ala Tyr  
65 70 75 80

Tyr Gln Pro Leu Glu Gly Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val  
85 90 95

Asp Tyr Leu Arg Leu Ala Gly Glu Val Ile Thr Leu Leu Thr Gly Val  
100 105 110

Leu Phe Phe Phe Thr Ser Ile Lys Asp Leu Phe Met Lys Lys Cys Pro  
115 120 125

Gly Val Asn Ser Leu Phe Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe  
130 135 140

Ile Tyr Ser Val Leu Val Val Val Ser Ala Ala Leu Tyr Leu Ala Gly  
145 150 155 160

Ile Glu Ala Tyr Leu Ala Val Met Val Phe Ala Leu Val Leu Gly Trp  
165 170 175

Met Asn Ala Leu Tyr Phe Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr  
180 185 190

Ser Ile Met Ile Gln Lys Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu  
195 200 205

Leu Val Tyr Leu Leu Phe Met Ile Gly Tyr Ala Ser Ala Leu Val Thr  
210 215 220

Leu Leu Asn Pro Cys Thr Asn Met Lys Val Cys Asn Glu Asp Gln Ser  
225 230 235 240

Asn Cys Thr Val Pro Ser Tyr Pro Ala Cys Arg Asp Ser Glu Thr Phe  
245 250 255

Ser Ala Phe Leu Leu Asp Leu Phe Lys Leu Thr Ile Gly Met Gly Asp  
260 265 270

Leu Glu Met Leu Ser Ser Ala Lys Tyr Pro Val Val Phe Ile Leu Leu  
275 280 285

Leu Val Thr Tyr Ile Ile Leu Thr Phe Val Leu Leu Leu Asn Met Leu  
290 295 300

Ile Ala Leu Met Gly Glu Thr Val Gly Gln Val Ser Lys Glu Ser Lys  
305 310 315 320

His Ile Trp Lys Leu Gln Trp Ala Thr Thr Ile Leu Asp Ile Glu Arg  
325 330 335

Ser Phe Pro Val Phe Leu Arg Lys Ala Phe Arg Ser Gly Glu Met Val  
340 345 350

Thr Val Gly Lys Ser Ser Asp Gly Thr Pro Asp Arg Arg Trp Cys Phe  
355 360 365

Arg Val Asp Glu Val Asn Trp Ser His Trp Asn Gln Asn Leu Gly Ile  
370 375 380

Ile Asn Glu Asp Pro Gly Lys Ser Glu Ile Tyr Gln Tyr Tyr Gly Phe  
385 390 395 400

Ser His Thr Met Gly Arg Leu Arg Arg Asp Arg Trp Ser Ser Val Val

405                      410                      415  
 Pro Arg Val Val Glu Leu Asn Lys Asn Ser Gly Thr Asp Glu Val Val  
                     420                      425                      430  
 Val Pro Leu Asp Asn Leu Gly Asn Pro Asn Cys Asp Gly His Gln Gln  
                     435                      440                      445  
 Gly Tyr Ala Pro Lys Trp Arg Ala Glu Asp Ala Pro Leu  
                     450                      455                      460

<210> 6  
 <211> 830  
 <212> PRT  
 <213> Rattus norvegicus

<400> 6

Met Ala Asp Pro Gly Asp Gly Pro Arg Ala Ala Pro Gly Asp Val Ala  
 1                      5                      10                      15  
 Glu Pro Pro Gly Asp Glu Ser Gly Thr Ser Gly Gly Glu Ala Phe Pro  
                     20                      25                      30  
 Leu Ser Ser Leu Ala Asn Leu Phe Glu Gly Glu Glu Gly Ser Ser Ser  
                     35                      40                      45  
 Leu Ser Pro Val Asp Ala Ser Arg Pro Ala Gly Pro Gly Asp Gly Arg  
                     50                      55                      60  
 Pro Asn Leu Arg Met Lys Phe Gln Gly Ala Phe Arg Lys Gly Val Pro  
 65                      70                      75                      80  
 Asn Pro Ile Asp Leu Leu Glu Ser Thr Leu Tyr Glu Ser Ser Val Val  
                     85                      90                      95  
 Pro Gly Pro Lys Lys Ala Pro Met Asp Ser Leu Phe Asp Tyr Gly Thr  
                     100                      105                      110  
 Tyr Arg His His Pro Ser Asp Asn Lys Arg Trp Arg Arg Lys Val Val  
                     115                      120                      125  
 Glu Lys Gln Pro Gln Ser Pro Lys Ala Pro Ala Pro Gln Pro Pro Pro  
                     130                      135                      140

Ile Leu Lys Val Phe Asn Arg Pro Ile Leu Phe Asp Ile Val Ser Arg  
145 150 155 160

Gly Ser Thr Ala Asp Leu Asp Gly Leu Leu Ser Tyr Leu Leu Thr His  
165 170 175

Lys Lys Arg Leu Thr Asp Glu Glu Phe Arg Glu Pro Ser Thr Gly Lys  
180 185 190

Thr Cys Leu Pro Lys Ala Leu Leu Asn Leu Ser Asn Gly Arg Asn Asp  
195 200 205

Thr Ile Pro Val Leu Leu Asp Ile Ala Glu Arg Thr Gly Asn Met Arg  
210 215 220

Glu Phe Ile Asn Ser Pro Phe Arg Asp Ile Tyr Tyr Arg Gly Gln Thr  
225 230 235 240

Ala Leu His Ile Ala Ile Glu Arg Arg Cys Lys His Tyr Val Glu Leu  
245 250 255

Leu Val Ala Gln Gly Ala Asp Val His Ala Gln Ala Arg Gly Arg Phe  
260 265 270

Phe Gln Pro Lys Asp Glu Gly Gly Tyr Phe Tyr Phe Gly Glu Leu Pro  
275 280 285

Leu Ser Leu Ala Ala Cys Thr Asn Gln Pro His Ile Val Asn Tyr Leu  
290 295 300

Thr Glu Asn Pro His Lys Lys Ala Asp Met Arg Arg Gln Asp Ser Arg  
305 310 315 320

Gly Asn Thr Val Leu His Ala Leu Val Ala Ile Ala Asp Asn Thr Arg  
325 330 335

Glu Asn Thr Lys Phe Val Thr Lys Met Tyr Asp Leu Leu Leu Leu Lys  
340 345 350

Cys Ser Arg Leu Phe Pro Asp Ser Asn Leu Glu Thr Val Leu Asn Asn  
355 360 365



Asp Gly Leu Ser Pro Leu Met Met Ala Ala Lys Thr Gly Lys Ile Gly  
 370 375 380

Val Phe Gln His Ile Ile Arg Arg Glu Val Thr Asp Glu Asp Thr Arg  
 385 390 395 400

His Leu Ser Arg Lys Phe Lys Asp Trp Ala Tyr Gly Pro Val Tyr Ser  
 405 410 415

Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr Cys Gly Glu Glu Val Ser  
 420 425 430

Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg His Glu  
 435 440 445

Met Leu Ala Val Glu Pro Ile Asn Glu Leu Leu Arg Asp Lys Trp Arg  
 450 455 460

Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn Val Val Ser Tyr Leu Cys  
 465 470 475 480

Ala Met Val Ile Phe Thr Leu Thr Ala Tyr Tyr Gln Pro Leu Glu Gly  
 485 490 495

Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val Asp Tyr Leu Arg Leu Ala  
 500 505 510

Gly Glu Val Ile Thr Leu Leu Thr Gly Val Leu Phe Phe Phe Thr Ser  
 515 520 525

Ile Lys Asp Leu Phe Met Lys Lys Cys Pro Gly Val Asn Ser Leu Phe  
 530 535 540

Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe Ile Tyr Ser Val Leu Val  
 545 550 555 560

Val Val Ser Ala Ala Leu Tyr Leu Ala Gly Ile Glu Ala Tyr Leu Ala  
 565 570 575

Val Met Val Phe Ala Leu Val Leu Gly Trp Met Asn Ala Leu Tyr Phe  
 580 585 590

Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr Ser Ile Met Ile Gln Lys

| 595  | 600 | 605 |
|--|-----|-----|
| Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu Leu Val Tyr Leu Leu Phe<br>610 615 620     |     |     |
| Met Ile Gly Tyr Ala Ser Ala Leu Val Thr Leu Leu Asn Pro Cys Thr<br>625 630 635 640 |     |     |
| Asn Met Lys Val Cys Asn Glu Asp Gln Ser Asn Cys Thr Val Pro Ser<br>645 650 655     |     |     |
| Tyr Pro Ala Cys Arg Asp Ser Glu Thr Phe Ser Ala Phe Leu Leu Asp<br>660 665 670     |     |     |
| Leu Phe Lys Leu Thr Ile Gly Met Gly Asp Leu Glu Met Leu Ser Ser<br>675 680 685     |     |     |
| Ala Lys Tyr Pro Val Val Phe Ile Leu Leu Leu Val Thr Tyr Ile Ile<br>690 695 700     |     |     |
| Leu Thr Phe Val Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu<br>705 710 715 720 |     |     |
| Thr Val Gly Gln Val Ser Lys Glu Ser Lys His Ile Trp Lys Leu Gln<br>725 730 735     |     |     |
| Trp Ala Thr Thr Gln Val Asn Trp Ser His Trp Asn Gln Asn Leu Gly<br>740 745 750     |     |     |
| Ile Ile Asn Glu Asp Pro Gly Lys Ser Glu Ile Tyr Gln Tyr Tyr Gly<br>755 760 765     |     |     |
| Phe Ser His Thr Met Gly Arg Leu Arg Arg Asp Arg Trp Ser Ser Val<br>770 775 780     |     |     |
| Val Pro Arg Val Val Glu Leu Asn Lys Asn Ser Gly Thr Asp Glu Val<br>785 790 795 800 |     |     |
| Val Val Pro Leu Asp Asn Leu Gly Asn Pro Asn Cys Asp Gly His Gln<br>805 810 815     |     |     |
| Gln Gly Tyr Ala Pro Lys Trp Arg Ala Glu Asp Ala Pro Leu<br>820 825 830             |     |     |

<210> 7  
<211> 420  
<212> PRT  
<213> Rattus norvegicus

<400> 7

Tyr Gly Pro Val Tyr Ser Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr  
1 5 10 15

Cys Gly Glu Glu Val Ser Val Leu Glu Ile Leu Val Tyr Asn Ser Lys  
20 25 30

Ile Glu Asn Arg His Glu Met Leu Ala Val Glu Pro Ile Asn Glu Leu  
35 40 45

Leu Arg Asp Lys Trp Arg Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn  
50 55 60

Val Val Ser Tyr Leu Cys Ala Met Val Ile Phe Thr Leu Thr Ala Tyr  
65 70 75 80

Tyr Gln Pro Leu Glu Gly Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val  
85 90 95

Asp Tyr Leu Arg Leu Ala Gly Glu Val Ile Thr Leu Leu Thr Gly Val  
100 105 110

Leu Phe Phe Phe Thr Ser Ile Lys Asp Leu Phe Met Lys Lys Cys Pro  
115 120 125

Gly Val Asn Ser Leu Phe Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe  
130 135 140

Ile Tyr Ser Val Leu Val Val Val Ser Ala Ala Leu Tyr Leu Ala Gly  
145 150 155 160

Ile Glu Ala Tyr Leu Ala Val Met Val Phe Ala Leu Val Leu Gly Trp  
165 170 175

Met Asn Ala Leu Tyr Phe Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr  
180 185 190

Ser Ile Met Ile Gln Lys Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu  
 195 200 205

Leu Val Tyr Leu Leu Phe Met Ile Gly Tyr Ala Ser Ala Leu Val Thr  
 210 215 220

Leu Leu Asn Pro Cys Thr Asn Met Lys Val Cys Asn Glu Asp Gln Ser  
 225 230 235 240

Asn Cys Thr Val Pro Ser Tyr Pro Ala Cys Arg Asp Ser Glu Thr Phe  
 245 250 255

Ser Ala Phe Leu Leu Asp Leu Phe Lys Leu Thr Ile Gly Met Gly Asp  
 260 265 270

Leu Glu Met Leu Ser Ser Ala Lys Tyr Pro Val Val Phe Ile Leu Leu  
 275 280 285

Leu Val Thr Tyr Ile Ile Leu Thr Phe Val Leu Leu Leu Asn Met Leu  
 290 295 300

Ile Ala Leu Met Gly Glu Thr Val Gly Gln Val Ser Lys Glu Ser Lys  
 305 310 315 320

His Ile Trp Lys Leu Gln Trp Ala Thr Thr Glu Val Asn Trp Ser His  
 325 330 335

Trp Asn Gln Asn Leu Gly Ile Ile Asn Glu Asp Pro Gly Lys Ser Glu  
 340 345 350

Ile Tyr Gln Tyr Tyr Gly Phe Ser His Thr Met Gly Arg Leu Arg Arg  
 355 360 365

Asp Arg Trp Ser Ser Val Val Pro Arg Val Val Glu Leu Asn Lys Asn  
 370 375 380

Ser Gly Thr Asp Glu Val Val Val Pro Leu Asp Asn Leu Gly Asn Pro  
 385 390 395 400

Asn Cys Asp Gly His Gln Gln Gly Tyr Ala Pro Lys Trp Arg Ala Glu  
 405 410 415

Asp Ala Pro Leu

420

<210> 8  
<211> 871  
<212> PRT  
<213> Rattus norvegicus

<400> 8

Met Ala Asp Pro Gly Asp Gly Pro Arg Ala Ala Pro Gly Asp Val Ala  
1 5 10 15

Glu Pro Pro Gly Asp Glu Ser Gly Thr Ser Gly Gly Glu Ala Phe Pro  
20 25 30

Leu Ser Ser Leu Ala Asn Leu Phe Glu Gly Glu Glu Gly Ser Ser Ser  
35 40 45

Leu Ser Pro Val Asp Ala Ser Arg Pro Ala Gly Pro Gly Asp Gly Arg  
50 55 60

Pro Asn Leu Arg Met Lys Phe Gln Gly Ala Phe Arg Lys Gly Val Pro  
65 70 75 80

Asn Pro Ile Asp Leu Leu Glu Ser Thr Leu Tyr Glu Ser Ser Val Val  
85 90 95

Pro Gly Pro Lys Lys Ala Pro Met Asp Ser Leu Phe Asp Tyr Gly Thr  
100 105 110

Tyr Arg His His Pro Ser Asp Asn Lys Arg Trp Arg Arg Lys Val Val  
115 120 125

Glu Lys Gln Pro Gln Ser Pro Lys Ala Pro Ala Pro Gln Pro Pro Pro  
130 135 140

Ile Leu Lys Val Phe Asn Arg Pro Ile Leu Phe Asp Ile Val Ser Arg  
145 150 155 160

Gly Ser Thr Ala Asp Leu Asp Gly Leu Leu Ser Tyr Leu Leu Thr His  
165 170 175

Lys Lys Arg Leu Thr Asp Glu Glu Phe Arg Glu Pro Ser Thr Gly Lys  
180 185 190

Thr Cys Leu Pro Lys Ala Leu Leu Asn Leu Ser Asn Gly Arg Asn Asp  
 195 200 205

Thr Ile Pro Val Leu Leu Asp Ile Ala Glu Arg Thr Gly Asn Met Arg  
 210 215 220

Glu Phe Ile Asn Ser Pro Phe Arg Asp Ile Tyr Tyr Arg Gly Gln Thr  
 225 230 235 240

Ala Leu His Ile Ala Ile Glu Arg Arg Cys Lys His Tyr Val Glu Leu  
 245 250 255

Leu Val Ala Gln Gly Ala Asp Val His Ala Gln Ala Arg Gly Arg Phe  
 260 265 270

Phe Gln Pro Lys Asp Glu Gly Gly Tyr Phe Tyr Phe Gly Glu Leu Pro  
 275 280 285

Leu Ser Leu Ala Ala Cys Thr Asn Gln Pro His Ile Val Asn Tyr Leu  
 290 295 300

Thr Glu Asn Pro His Lys Lys Ala Asp Met Arg Arg Gln Asp Ser Arg  
 305 310 315 320

Gly Asn Thr Val Leu His Ala Leu Val Ala Ile Ala Asp Asn Thr Arg  
 325 330 335

Glu Asn Thr Lys Phe Val Thr Lys Met Tyr Asp Leu Leu Leu Leu Lys  
 340 345 350

Cys Ser Arg Leu Phe Pro Asp Ser Asn Leu Glu Thr Val Leu Asn Asn  
 355 360 365

Asp Gly Leu Ser Pro Leu Met Met Ala Ala Lys Thr Gly Lys Ile Gly  
 370 375 380

Val Phe Gln His Ile Ile Arg Arg Glu Val Thr Asp Glu Asp Thr Arg  
 385 390 395 400

His Leu Ser Arg Lys Phe Lys Asp Trp Ala Tyr Gly Pro Val Tyr Ser  
 405 410 415

Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr Cys Gly Glu Glu Val Ser  
 420 425 430

Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg His Glu  
 435 440 445

Met Leu Ala Val Glu Pro Ile Asn Glu Leu Leu Arg Asp Lys Trp Arg  
 450 455 460

Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn Val Val Ser Tyr Leu Cys  
 465 470 475 480

Ala Met Val Ile Phe Thr Leu Thr Ala Tyr Tyr Gln Pro Leu Glu Gly  
 485 490 495

Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val Asp Tyr Leu Arg Leu Ala  
 500 505 510

Gly Glu Val Ile Thr Leu Leu Thr Gly Val Leu Phe Phe Phe Thr Ser  
 515 520 525

Ile Lys Asp Leu Phe Met Lys Lys Cys Pro Gly Val Asn Ser Leu Phe  
 530 535 540

Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe Ile Tyr Ser Val Leu Val  
 545 550 555 560

Val Val Ser Ala Ala Leu Tyr Leu Ala Gly Ile Glu Ala Tyr Leu Ala  
 565 570 575

Val Met Val Phe Ala Leu Val Leu Gly Trp Met Asn Ala Leu Tyr Phe  
 580 585 590

Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr Ser Ile Met Ile Gln Lys  
 595 600 605

Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu Leu Val Tyr Leu Leu Phe  
 610 615 620

Met Ile Gly Tyr Ala Ser Ala Leu Val Thr Leu Leu Asn Pro Cys Thr  
 625 630 635 640

Asn Met Lys Val Cys Asn Glu Asp Gln Ser Asn Cys Thr Val Pro Ser

645

650

655

Tyr Pro Ala Cys Arg Asp Ser Glu Thr Phe Ser Ala Phe Leu Leu Lys  
 660 665 670

Leu Phe Lys Leu Thr Ile Gly Met Gly Asp Leu Glu Met Leu Ser Ser  
 675 680 685

Ala Lys Tyr Pro Val Val Phe Ile Leu Leu Leu Val Thr Tyr Ile Ile  
 690 695 700

Leu Thr Phe Val Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu  
 705 710 715 720

Thr Val Gly Gln Val Ser Lys Glu Ser Lys His Ile Trp Lys Leu Gln  
 725 730 735

Trp Ala Thr Thr Ile Leu Asp Ile Glu Arg Ser Phe Pro Val Phe Leu  
 740 745 750

Arg Lys Ala Phe Arg Ser Gly Glu Met Val Thr Val Gly Lys Ser Ser  
 755 760 765

Asp Gly Thr Pro Asp Arg Arg Trp Cys Phe Arg Val Asp Glu Val Asn  
 770 775 780

Trp Ser His Trp Asn Gln Asn Leu Gly Ile Ile Asn Glu Asp Pro Gly  
 785 790 795 800

Lys Ser Glu Ile Tyr Gln Tyr Tyr Gly Phe Ser His Thr Met Gly Arg  
 805 810 815

Leu Arg Arg Asp Arg Trp Ser Ser Val Val Pro Arg Val Val Glu Leu  
 820 825 830

Asn Lys Asn Ser Gly Thr Asp Glu Val Val Val Pro Leu Asp Asn Leu  
 835 840 845

Gly Asn Pro Asn Cys Asp Gly His Gln Gln Gly Tyr Ala Pro Lys Trp  
 850 855 860

Arg Ala Glu Asp Ala Pro Leu  
 865 870



<210> 9  
<211> 871  
<212> PRT  
<213> Rattus norvegicus

<400> 9

Met Ala Asp Pro Gly Asp Gly Pro Arg Ala Ala Pro Gly Asp Val Ala  
1 5 10 15

Glu Pro Pro Gly Asp Glu Ser Gly Thr Ser Gly Gly Glu Ala Phe Pro  
20 25 30

Leu Ser Ser Leu Ala Asn Leu Phe Glu Gly Glu Glu Gly Ser Ser Ser  
35 40 45

Leu Ser Pro Val Asp Ala Ser Arg Pro Ala Gly Pro Gly Asp Gly Arg  
50 55 60

Pro Asn Leu Arg Met Lys Phe Gln Gly Ala Phe Arg Lys Gly Val Pro  
65 70 75 80

Asn Pro Ile Asp Leu Leu Glu Ser Thr Leu Tyr Glu Ser Ser Val Val  
85 90 95

Pro Gly Pro Lys Lys Ala Pro Met Asp Ser Leu Phe Asp Tyr Gly Thr  
100 105 110

Tyr Arg His His Pro Ser Asp Asn Lys Arg Trp Arg Arg Lys Val Val  
115 120 125

Glu Lys Gln Pro Gln Ser Pro Lys Ala Pro Ala Pro Gln Pro Pro Pro  
130 135 140

Ile Leu Lys Val Phe Asn Arg Pro Ile Leu Phe Asp Ile Val Ser Arg  
145 150 155 160

Gly Ser Thr Ala Asp Leu Asp Gly Leu Leu Ser Tyr Leu Leu Thr His  
165 170 175

Lys Lys Arg Leu Thr Asp Glu Glu Phe Arg Glu Pro Ser Thr Gly Lys  
180 185 190

Thr Cys Leu Pro Lys Ala Leu Leu Asn Leu Ser Asn Gly Arg Asn Asp  
 195 200 205

Thr Ile Pro Val Leu Leu Asp Ile Ala Glu Arg Thr Gly Asn Met Arg  
 210 215 220

Glu Phe Ile Asn Ser Pro Phe Arg Asp Ile Tyr Tyr Arg Gly Gln Thr  
 225 230 235 240

Ala Leu His Ile Ala Ile Glu Arg Arg Cys Lys His Tyr Val Glu Leu  
 245 250 255

Leu Val Ala Gln Gly Ala Asp Val His Ala Gln Ala Arg Gly Arg Phe  
 260 265 270

Phe Gln Pro Lys Asp Glu Gly Gly Tyr Phe Tyr Phe Gly Glu Leu Pro  
 275 280 285

Leu Ser Leu Ala Ala Cys Thr Asn Gln Pro His Ile Val Asn Tyr Leu  
 290 295 300

Thr Glu Asn Pro His Lys Lys Ala Asp Met Arg Arg Gln Asp Ser Arg  
 305 310 315 320

Gly Asn Thr Val Leu His Ala Leu Val Ala Ile Ala Asp Asn Thr Arg  
 325 330 335

Glu Asn Thr Lys Phe Val Thr Lys Met Tyr Asp Leu Leu Leu Leu Lys  
 340 345 350

Cys Ser Arg Leu Phe Pro Asp Ser Asn Leu Glu Thr Val Leu Asn Asn  
 355 360 365

Asp Gly Leu Ser Pro Leu Met Met Ala Ala Lys Thr Gly Lys Ile Gly  
 370 375 380

Val Phe Gln His Ile Ile Arg Arg Glu Val Thr Asp Glu Asp Thr Arg  
 385 390 395 400

His Leu Ser Arg Lys Phe Lys Asp Trp Ala Tyr Gly Pro Val Tyr Ser  
 405 410 415

Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr Cys Gly Glu Glu Val Ser

420

425

430

Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg His Glu  
 435 440 445

Met Leu Ala Val Glu Pro Ile Asn Glu Leu Leu Arg Asp Lys Trp Arg  
 450 455 460

Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn Val Val Ser Tyr Leu Cys  
 465 470 475 480

Ala Met Val Ile Phe Thr Leu Thr Ala Tyr Tyr Gln Pro Leu Glu Gly  
 485 490 495

Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val Asp Tyr Leu Arg Leu Ala  
 500 505 510

Gly Glu Val Ile Thr Leu Leu Thr Gly Val Leu Phe Phe Phe Thr Ser  
 515 520 525

Ile Lys Asp Leu Phe Met Lys Lys Cys Pro Gly Val Asn Ser Leu Phe  
 530 535 540

Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe Ile Tyr Ser Val Leu Val  
 545 550 555 560

Val Val Ser Ala Ala Leu Tyr Leu Ala Gly Ile Glu Ala Tyr Leu Ala  
 565 570 575

Val Met Val Phe Ala Leu Val Leu Gly Trp Met Asn Ala Leu Tyr Phe  
 580 585 590

Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr Ser Ile Met Ile Gln Lys  
 595 600 605

Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu Leu Val Tyr Leu Leu Phe  
 610 615 620

Met Ile Gly Tyr Ala Ser Ala Leu Val Thr Leu Leu Asn Pro Cys Thr  
 625 630 635 640

Asn Met Lys Val Cys Asn Glu Asp Gln Ser Asn Cys Thr Val Pro Ser  
 645 650 655

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Pro | Ala | Cys | Arg | Asp | Ser | Glu | Thr | Phe | Ser | Ala | Phe | Leu | Leu | Asp | 660 | 665 | 670 |     |
| Leu | Phe | Lys | Leu | Thr | Ile | Gly | Met | Gly | Lys | Leu | Glu | Met | Leu | Ser | Ser | 675 | 680 | 685 |     |
| Ala | Lys | Tyr | Pro | Val | Val | Phe | Ile | Leu | Leu | Leu | Val | Thr | Tyr | Ile | Ile | 690 | 695 | 700 |     |
| Leu | Thr | Phe | Val | Leu | Leu | Leu | Asn | Met | Leu | Ile | Ala | Leu | Met | Gly | Glu | 705 | 710 | 715 | 720 |
| Thr | Val | Gly | Gln | Val | Ser | Lys | Glu | Ser | Lys | His | Ile | Trp | Lys | Leu | Gln | 725 | 730 | 735 |     |
| Trp | Ala | Thr | Thr | Ile | Leu | Asp | Ile | Glu | Arg | Ser | Phe | Pro | Val | Phe | Leu | 740 | 745 | 750 |     |
| Arg | Lys | Ala | Phe | Arg | Ser | Gly | Glu | Met | Val | Thr | Val | Gly | Lys | Ser | Ser | 755 | 760 | 765 |     |
| Asp | Gly | Thr | Pro | Asp | Arg | Arg | Trp | Cys | Phe | Arg | Val | Asp | Glu | Val | Asn | 770 | 775 | 780 |     |
| Trp | Ser | His | Trp | Asn | Gln | Asn | Leu | Gly | Ile | Ile | Asn | Glu | Asp | Pro | Gly | 785 | 790 | 795 | 800 |
| Lys | Ser | Glu | Ile | Tyr | Gln | Tyr | Tyr | Gly | Phe | Ser | His | Thr | Met | Gly | Arg | 805 | 810 | 815 |     |
| Leu | Arg | Arg | Asp | Arg | Trp | Ser | Ser | Val | Val | Pro | Arg | Val | Val | Glu | Leu | 820 | 825 | 830 |     |
| Asn | Lys | Asn | Ser | Gly | Thr | Asp | Glu | Val | Val | Val | Pro | Leu | Asp | Asn | Leu | 835 | 840 | 845 |     |
| Gly | Asn | Pro | Asn | Cys | Asp | Gly | His | Gln | Gln | Gly | Tyr | Ala | Pro | Lys | Trp | 850 | 855 | 860 |     |
| Arg | Ala | Glu | Asp | Ala | Pro | Leu |     |     |     |     |     |     |     |     |     | 865 | 870 |     |     |

<210> 10  
<211> 871  
<212> PRT  
<213> Rattus norvegicus

<400> 10

Met Ala Asp Pro Gly Asp Gly Pro Arg Ala Ala Pro Gly Asp Val Ala  
1 5 10 15

Glu Pro Pro Gly Asp Glu Ser Gly Thr Ser Gly Gly Glu Ala Phe Pro  
20 25 30

Leu Ser Ser Leu Ala Asn Leu Phe Glu Gly Glu Glu Gly Ser Ser Ser  
35 40 45

Leu Ser Pro Val Asp Ala Ser Arg Pro Ala Gly Pro Gly Asp Gly Arg  
50 55 60

Pro Asn Leu Arg Met Lys Phe Gln Gly Ala Phe Arg Lys Gly Val Pro  
65 70 75 80

Asn Pro Ile Asp Leu Leu Glu Ser Thr Leu Tyr Glu Ser Ser Val Val  
85 90 95

Pro Gly Pro Lys Lys Ala Pro Met Asp Ser Leu Phe Asp Tyr Gly Thr  
100 105 110

Tyr Arg His His Pro Ser Asp Asn Lys Arg Trp Arg Arg Lys Val Val  
115 120 125

Glu Lys Gln Pro Gln Ser Pro Lys Ala Pro Ala Pro Gln Pro Pro Pro  
130 135 140

Ile Leu Lys Val Phe Asn Arg Pro Ile Leu Phe Asp Ile Val Ser Arg  
145 150 155 160

Gly Ser Thr Ala Asp Leu Asp Gly Leu Leu Ser Tyr Leu Leu Thr His  
165 170 175

Lys Lys Arg Leu Thr Asp Glu Glu Phe Arg Glu Pro Ser Thr Gly Lys  
180 185 190

Thr Cys Leu Pro Lys Ala Leu Leu Asn Leu Ser Asn Gly Arg Asn Asp

|  |     |     |
|--|-----|-----|
| 195  | 200 | 205 |
| Thr Ile Pro Val Leu Leu Asp Ile Ala Glu Arg Thr Gly Asn Met Arg<br>210 215 220     |     |     |
| Glu Phe Ile Asn Ser Pro Phe Arg Asp Ile Tyr Tyr Arg Gly Gln Thr<br>225 230 235 240 |     |     |
| Ala Leu His Ile Ala Ile Glu Arg Arg Cys Lys His Tyr Val Glu Leu<br>245 250 255     |     |     |
| Leu Val Ala Gln Gly Ala Asp Val His Ala Gln Ala Arg Gly Arg Phe<br>260 265 270     |     |     |
| Phe Gln Pro Lys Asp Glu Gly Gly Tyr Phe Tyr Phe Gly Glu Leu Pro<br>275 280 285     |     |     |
| Leu Ser Leu Ala Ala Cys Thr Asn Gln Pro His Ile Val Asn Tyr Leu<br>290 295 300     |     |     |
| Thr Glu Asn Pro His Lys Lys Ala Asp Met Arg Arg Gln Asp Ser Arg<br>305 310 315 320 |     |     |
| Gly Asn Thr Val Leu His Ala Leu Val Ala Ile Ala Asp Asn Thr Arg<br>325 330 335     |     |     |
| Glu Asn Thr Lys Phe Val Thr Lys Met Tyr Asp Leu Leu Leu Leu Lys<br>340 345 350     |     |     |
| Cys Ser Arg Leu Phe Pro Asp Ser Asn Leu Glu Thr Val Leu Asn Asn<br>355 360 365     |     |     |
| Asp Gly Leu Ser Pro Leu Met Met Ala Ala Lys Thr Gly Lys Ile Gly<br>370 375 380     |     |     |
| Val Phe Gln His Ile Ile Arg Arg Glu Val Thr Asp Glu Asp Thr Arg<br>385 390 395 400 |     |     |
| His Leu Ser Arg Lys Phe Lys Asp Trp Ala Tyr Gly Pro Val Tyr Ser<br>405 410 415     |     |     |
| Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr Cys Gly Glu Glu Val Ser<br>420 425 430     |     |     |

Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg His Glu  
435 440 445

Met Leu Ala Val Glu Pro Ile Asn Glu Leu Leu Arg Asp Lys Trp Arg  
450 455 460

Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn Val Val Ser Tyr Leu Cys  
465 470 475 480

Ala Met Val Ile Phe Thr Leu Thr Ala Tyr Tyr Gln Pro Leu Glu Gly  
485 490 495

Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val Asp Tyr Leu Arg Leu Ala  
500 505 510

Gly Glu Val Ile Thr Leu Leu Thr Gly Val Leu Phe Phe Phe Thr Ser  
515 520 525

Ile Lys Asp Leu Phe Met Lys Lys Cys Pro Gly Val Asn Ser Leu Phe  
530 535 540

Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe Ile Tyr Ser Val Leu Val  
545 550 555 560

Val Val Ser Ala Ala Leu Tyr Leu Ala Gly Ile Glu Ala Tyr Leu Ala  
565 570 575

Val Met Val Phe Ala Leu Val Leu Gly Trp Met Asn Ala Leu Tyr Phe  
580 585 590

Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr Ser Ile Met Ile Gln Lys  
595 600 605

Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu Leu Val Tyr Leu Leu Phe  
610 615 620

Met Ile Gly Tyr Ala Ser Ala Leu Val Thr Leu Leu Asn Pro Cys Thr  
625 630 635 640

Asn Met Lys Val Cys Asn Glu Asp Gln Ser Asn Cys Thr Val Pro Ser  
645 650 655

Tyr Pro Ala Cys Arg Asp Ser Glu Thr Phe Ser Ala Phe Leu Leu Asp  
 660 665 670

Leu Phe Lys Leu Thr Ile Gly Lys Gly Asp Leu Glu Met Leu Ser Ser  
 675 680 685

Ala Lys Tyr Pro Val Val Phe Ile Leu Leu Leu Val Thr Tyr Ile Ile  
 690 695 700

Leu Thr Phe Val Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu  
 705 710 715 720

Thr Val Gly Gln Val Ser Lys Glu Ser Lys His Ile Trp Lys Leu Gln  
 725 730 735

Trp Ala Thr Thr Ile Leu Asp Ile Glu Arg Ser Phe Pro Val Phe Leu  
 740 745 750

Arg Lys Ala Phe Arg Ser Gly Glu Met Val Thr Val Gly Lys Ser Ser  
 755 760 765

Asp Gly Thr Pro Asp Arg Arg Trp Cys Phe Arg Val Asp Glu Val Asn  
 770 775 780

Trp Ser His Trp Asn Gln Asn Leu Gly Ile Ile Asn Glu Asp Pro Gly  
 785 790 795 800

Lys Ser Glu Ile Tyr Gln Tyr Tyr Gly Phe Ser His Thr Met Gly Arg  
 805 810 815

Leu Arg Arg Asp Arg Trp Ser Ser Val Val Pro Arg Val Val Glu Leu  
 820 825 830

Asn Lys Asn Ser Gly Thr Asp Glu Val Val Val Pro Leu Asp Asn Leu  
 835 840 845

Gly Asn Pro Asn Cys Asp Gly His Gln Gln Gly Tyr Ala Pro Lys Trp  
 850 855 860

Arg Ala Glu Asp Ala Pro Leu  
 865 870



<210> 11  
<211> 871  
<212> PRT  
<213> Rattus norvegicus

<400> 11

Met Ala Asp Pro Gly Asp Gly Pro Arg Ala Ala Pro Gly Asp Val Ala  
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Glu Pro Pro Gly Asp Glu Ser Gly Thr Ser Gly Gly Glu Ala Phe Pro  
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Leu Ser Ser Leu Ala Asn Leu Phe Glu Gly Glu Glu Gly Ser Ser Ser  
35 40 45

Leu Ser Pro Val Asp Ala Ser Arg Pro Ala Gly Pro Gly Asp Gly Arg  
50 55 60

Pro Asn Leu Arg Met Lys Phe Gln Gly Ala Phe Arg Lys Gly Val Pro  
65 70 75 80

Asn Pro Ile Asp Leu Leu Glu Ser Thr Leu Tyr Glu Ser Ser Val Val  
85 90 95

Pro Gly Pro Lys Lys Ala Pro Met Asp Ser Leu Phe Asp Tyr Gly Thr  
100 105 110

Tyr Arg His His Pro Ser Asp Asn Lys Arg Trp Arg Arg Lys Val Val  
115 120 125

Glu Lys Gln Pro Gln Ser Pro Lys Ala Pro Ala Pro Gln Pro Pro Pro  
130 135 140

Ile Leu Lys Val Phe Asn Arg Pro Ile Leu Phe Asp Ile Val Ser Arg  
145 150 155 160

Gly Ser Thr Ala Asp Leu Asp Gly Leu Leu Ser Tyr Leu Leu Thr His  
165 170 175

Lys Lys Arg Leu Thr Asp Glu Glu Phe Arg Glu Pro Ser Thr Gly Lys  
180 185 190

Thr Cys Leu Pro Lys Ala Leu Leu Asn Leu Ser Asn Gly Arg Asn Asp  
195 200 205

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Ile | Pro | Val | Leu | Leu | Asp | Ile | Ala | Glu | Arg | Thr | Gly | Asn | Met | Arg | 210 | 215 | 220 |     |
| Glu | Phe | Ile | Asn | Ser | Pro | Phe | Arg | Asp | Ile | Tyr | Tyr | Arg | Gly | Gln | Thr | 225 | 230 | 235 | 240 |
| Ala | Leu | His | Ile | Ala | Ile | Glu | Arg | Arg | Cys | Lys | His | Tyr | Val | Glu | Leu | 245 | 250 | 255 |     |
| Leu | Val | Ala | Gln | Gly | Ala | Asp | Val | His | Ala | Gln | Ala | Arg | Gly | Arg | Phe | 260 | 265 | 270 |     |
| Phe | Gln | Pro | Lys | Asp | Glu | Gly | Gly | Tyr | Phe | Tyr | Phe | Gly | Glu | Leu | Pro | 275 | 280 | 285 |     |
| Leu | Ser | Leu | Ala | Ala | Cys | Thr | Asn | Gln | Pro | His | Ile | Val | Asn | Tyr | Leu | 290 | 295 | 300 |     |
| Thr | Glu | Asn | Pro | His | Lys | Lys | Ala | Asp | Met | Arg | Arg | Gln | Asp | Ser | Arg | 305 | 310 | 315 | 320 |
| Gly | Asn | Thr | Val | Leu | His | Ala | Leu | Val | Ala | Ile | Ala | Asp | Asn | Thr | Arg | 325 | 330 | 335 |     |
| Glu | Asn | Thr | Lys | Phe | Val | Thr | Lys | Met | Tyr | Asp | Leu | Leu | Leu | Leu | Lys | 340 | 345 | 350 |     |
| Cys | Ser | Arg | Leu | Phe | Pro | Asp | Ser | Asn | Leu | Glu | Thr | Val | Leu | Asn | Asn | 355 | 360 | 365 |     |
| Asp | Gly | Leu | Ser | Pro | Leu | Met | Met | Ala | Ala | Lys | Thr | Gly | Lys | Ile | Gly | 370 | 375 | 380 |     |
| Val | Phe | Gln | His | Ile | Ile | Arg | Arg | Glu | Val | Thr | Asp | Glu | Asp | Thr | Arg | 385 | 390 | 395 | 400 |
| His | Leu | Ser | Arg | Lys | Phe | Lys | Asp | Trp | Ala | Tyr | Gly | Pro | Val | Tyr | Ser | 405 | 410 | 415 |     |
| Ser | Leu | Tyr | Asp | Leu | Ser | Ser | Leu | Asp | Thr | Cys | Gly | Glu | Glu | Val | Ser | 420 | 425 | 430 |     |

Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg His Glu  
435 440 445

Met Leu Ala Val Glu Pro Ile Asn Glu Leu Leu Arg Asp Lys Trp Arg  
450 455 460

Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn Val Val Ser Tyr Leu Cys  
465 470 475 480

Ala Met Val Ile Phe Thr Leu Thr Ala Tyr Tyr Gln Pro Leu Glu Gly  
485 490 495

Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val Asp Tyr Leu Arg Leu Ala  
500 505 510

Gly Glu Val Ile Thr Leu Leu Thr Gly Val Leu Phe Phe Phe Thr Ser  
515 520 525

Ile Lys Asp Leu Phe Met Lys Lys Cys Pro Gly Val Asn Ser Leu Phe  
530 535 540

Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe Ile Tyr Ser Val Leu Val  
545 550 555 560

Val Val Ser Ala Ala Leu Tyr Leu Ala Gly Ile Glu Ala Tyr Leu Ala  
565 570 575

Val Met Val Phe Ala Leu Val Leu Gly Trp Met Asn Ala Leu Tyr Phe  
580 585 590

Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr Ser Ile Met Ile Gln Lys  
595 600 605

Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu Leu Val Tyr Leu Leu Phe  
610 615 620

Met Ile Gly Tyr Ala Ser Ala Leu Val Thr Leu Leu Asn Pro Cys Thr  
625 630 635 640

Asn Met Lys Val Cys Asn Glu Asp Gln Ser Asn Cys Thr Val Pro Ser  
645 650 655

Tyr Pro Ala Cys Arg Asp Ser Glu Thr Phe Ser Ala Phe Leu Leu Asp  
 660 665 670

Leu Phe Lys Leu Thr Ile Gly Met Gly Asp Leu Glu Met Leu Ser Ser  
 675 680 685

Ala Lys Tyr Pro Val Val Phe Ile Leu Leu Leu Val Thr Tyr Ile Ile  
 690 695 700

Leu Thr Phe Val Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu  
 705 710 715 720

Thr Val Gly Gln Val Ser Lys Glu Ser Lys His Ile Trp Lys Leu Gln  
 725 730 735

Trp Ala Thr Thr Ile Leu Asp Ile Glu Arg Ser Phe Pro Val Phe Leu  
 740 745 750

Arg Lys Ala Phe Arg Ser Gly Glu Met Val Thr Val Gly Lys Ser Ser  
 755 760 765

Asp Gly Thr Pro Asp Arg Arg Trp Cys Phe Arg Val Asp Glu Val Asn  
 770 775 780

Trp Ser His Trp Asn Gln Asn Leu Gly Ile Ile Asn Glu Asp Pro Gly  
 785 790 795 800

Lys Ser Glu Ile Tyr Gln Tyr Tyr Gly Phe Ser His Thr Met Gly Arg  
 805 810 815

Leu Arg Arg Asp Arg Trp Ser Ser Val Val Pro Arg Val Val Glu Leu  
 820 825 830

Asn Lys Asn Ser Gly Thr Asp Glu Val Val Val Pro Leu Asp Asn Leu  
 835 840 845

Gly Asn Pro Asn Cys Asp Gly His Gln Gln Gly Tyr Ala Pro Lys Trp  
 850 855 860

Arg Ala Glu Asp Ala Pro Leu  
 865 870

<211> 3211  
<212> DNA  
<213> Rattus norvegicus

<400> 12

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| gagaagtcca aacagatctg ctcagggtcc agtatggcag atcctggtga tggcccccg    | 120  |
| gcagcgccctg gggatgtggc tgagccccct ggagacgaga gtggcacttc tgggtggggag | 180  |
| gccttcccc tctcttcctt ggccaacctg tttgaggag aggaaggctc ctcttctctt     | 240  |
| tcaccagtgg atgctagccg ccctgctggc cccggggatg gacgtccaaa cctgcgtatg   | 300  |
| aagttccagg gcgctttccg caaggggggtt cccaaccca ttgacctgct ggagtccacc   | 360  |
| ctgtatgagt cctcagtagt gcctgggccc aagaaagcgc ccatggattc gttgttcgac   | 420  |
| tatggcactt accggcacca cccagtgac aacaagagat ggaggaggaa ggtcgtagag    | 480  |
| aagcagccac agagcccaa agctcccgcc cccagccac ccccatcct caaagtcttc      | 540  |
| aaccggccca tcctctttga catcgtgtcc cggggctcca ctgccgacct ggacggactg   | 600  |
| ctctcctact tgctgaccca caagaagcgc ctgactgatg aggagtccg ggaaccatcc    | 660  |
| acagggaaga cctgcctgcc caaggcactt ctgaacttaa gcaatggccg aaacgacacc   | 720  |
| atcccagtgt tgctggacat tgcggaacgc acgggcaaca tgcgggagtt catcaactcg   | 780  |
| cccttcagag acatctacta ccgagggcag acggcactgc acatcgccat tgaacggcgc   | 840  |
| tgcaagcatt acgtggagct cctgggtggc caggagaccg atgtgcacgc gcaggcccg    | 900  |
| gggcggttct tccagccaa ggatgagggg ggctacttct actttgggga gctgcccttg    | 960  |
| tccttggcag cctgcaccaa ccagccgcac atcgtcaact acctgacaga gaaccctcac   | 1020 |
| aagaaagccg atatgaggcg acaggactcc agaggcaaca cgggtgctcca cgcgctggtg  | 1080 |
| gccatcgctg acaacaccg agagaacacc aagtttgtca ccaagatgta tgacctgttg    | 1140 |
| cttctcaagt gctccgcct cttcccagac agcaacctgg agactgtgct taacaatgac    | 1200 |
| ggctcttcgc ccctcatgat ggctgccaa actggcaaga tcggggtctt tcagcacatc    | 1260 |
| atccgacggg aggtgacaga tgaggacaca cggcacctgt ctcgcaagtt caaggactgg   | 1320 |
| gcctacgggc ctgtgtattc ttctctctac gacctctcct ccctggatac gtgcggggag   | 1380 |
| gaagtgtccg tgctggagat cctggtttac aacagcaaga tcgagaaccg ccatgagatg   | 1440 |
| ctggctgtgg agccattaa cgaactgctg agggacaagt ggcgtaagtt cggggccgtg    | 1500 |
| tccttctaca tcaacgttgt ctctatctg tgtgccatgg tcatcttcac cctcacagcc    | 1560 |

|   |      |
|---|------|
| tactatcagc cactggaggg cacgccaccc tacccttacc gtaccacggt ggactacctg   | 1620 |
| aggctggctg gtgaggtcat cacgctcctc acaggagtcc tgttcttctt taccagtatc   | 1680 |
| aaagacttgt tcatgaagaa atgccctgga gtgaattctc tcttcgtcga tggctccttc   | 1740 |
| cagttgctct acttcatcta ctcaagtctg gtggtttgtg ctgcggcgct ctacctggca   | 1800 |
| gggatcgagg cctatctggc tgtgatggtc tttgccctgg tcctgggctg gatgaatgcc   | 1860 |
| ctttacttca cccgtgggct gaagctgaca gggacctaca gcatcatgat tcagaagatc   | 1920 |
| ctcttcaaag atctcttccg ctttctgctg gtctacctgc tttttatgat tggctatgcc   | 1980 |
| tcagctctgg tcacctcct gaatccgtgc accaacaatga aggtctgtaa cgaggaccag   | 2040 |
| agcaactgca cggtgccctc ataccccgcg tgccgggaca gcgagacctt cagcgccttc   | 2100 |
| ctactggacc tcttcaagct caccatcggc atggggcgacc tggagatgct gagcagcgct  | 2160 |
| aagtaccccg tggctctcat tctcctgctg gttacctaca tcatcctcac cttcgtgctc   | 2220 |
| ctgctgaaca tgctcatcg cctcatgggt gagaccgtgg gccaggtgtc caaggagagc    | 2280 |
| aagcacatct ggaagctgca gtgggccacc accatcctgg acatcgagcg ctccctccct   | 2340 |
| gtgttctga ggaaggcctt ccgctccgga gagatgggtga cagtgggcaa gagctcggat   | 2400 |
| ggcactccag accgcaggtg gtgcttcagg gtggacgagg tgaactggtc tcaactggaac  | 2460 |
| cagaacctgg gcatcattaa cgaggacccc ggcaagagcg agatctacca gtactatggc   | 2520 |
| ttctcccata ccatggggcg cctccgcagg gatcgctgggt cctcagtgggt gccccgcgtg | 2580 |
| gtggagctga acaagaactc aggcacagat gaagtgggtg tccccctgga taacctaggg   | 2640 |
| aaccccaact gtgacggcca ccagcaaggt tatgctccca agtggagggc ggaggacgca   | 2700 |
| ccactgtagg ggccatgcca gggctgggggt caatggccca ggcttgggcc ttgctcccac  | 2760 |
| ctacatttca gcatctgtcc tgtgtcttcc cacaccaca cgtgacctcg gaggtgaggg    | 2820 |
| cctctgtgga gactctgggg agggcccagg accctctgggt cccacaaaag acttttgctc  | 2880 |
| ttattttctac tcctccccac atggggggacg gggctcctgg ccacctgtct cactcccatg | 2940 |
| gagtcacctc agccagctca gggccctcc actcacagg ctcaggcccc tgteccctctt    | 3000 |
| gtgcactatt tattgtctc ctcaggaaaa tgacatcaca ggagtctacc tgcagctgga    | 3060 |
| acctggccag ggctgaggct catgcaggga cactgcagcc ctgacctgct gcagatctga   | 3120 |
| cctgctgcag cccgggctag ggtgggtctt ctgtactttg tagagatcgg ggctgttggt   | 3180 |
| gctcaataaa tgtttgttta ttctcggtgg a                                  | 3211 |

<210> 13  
<211> 870  
<212> PRT  
<213> Mus musculus

<400> 13

Met Ala Asp Pro Gly Asp Gly Pro Arg Ala Ala Pro Gly Glu Val Ala  
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Glu Pro Pro Gly Asp Glu Ser Gly Thr Ser Gly Gly Glu Ala Phe Pro  
20 25 30

Leu Ser Ser Leu Ala Asn Leu Phe Glu Gly Glu Glu Ser Ser Phe Ser  
35 40 45

Tyr Pro Arg Trp Thr Ala Ser Arg Pro Ala Gly Pro Gly Asp Gly Arg  
50 55 60

Pro Asn Leu Arg Met Lys Phe Arg Ser Ala Phe Arg Lys Gly Val Pro  
65 70 75 80

Asn Pro Ile Asp Leu Leu Glu Ser Thr Leu Tyr Glu Ser Ser Val Val  
85 90 95

Pro Gly Pro Lys Lys Ala Pro Met Asp Ser Leu Phe Asp Tyr Gly Thr  
100 105 110

Tyr Arg His His Pro Ser Asp Asn Lys Arg Trp Arg Arg Lys Val Val  
115 120 125

Glu Lys Gln Pro Gln Ser Pro Lys Ala Pro Ala Pro Gln Pro Pro Pro  
130 135 140

Ile Leu Lys Val Phe Asn Arg Pro Ile Leu Phe Asp Ile Val Ser Arg  
145 150 155 160

Gly Ser Thr Ala Asp Leu Asp Gly Leu Leu Ser Phe Leu Leu Thr His  
165 170 175

Lys Lys Arg Leu Thr Asp Glu Glu Phe Arg Glu Pro Ser Thr Gly Lys  
180 185 190

Thr Cys Leu Pro Lys Ala Leu Leu Asn Leu Ser Asn Gly Arg Asn Asp  
195 200 205

Thr Ile Pro Val Leu Leu Asp Ile Ala Glu Arg Thr Gly Asn Met Arg  
 210 215 220

Glu Phe Ile Asn Ser Pro Phe Arg Asp Ile Tyr Tyr Arg Gly Gln Thr  
 225 230 235 240

Ser Leu His Ile Ala Ile Glu Arg Arg Cys Lys His Tyr Val Glu Leu  
 245 250 255

Leu Val Ala Gln Gly Ala Asp Val His Ala Gln Ala Arg Gly Arg Phe  
 260 265 270

Phe Gln Pro Lys Asp Glu Gly Gly Tyr Phe Tyr Phe Gly Glu Leu Pro  
 275 280 285

Leu Ser Leu Ala Ala Cys Thr Asn Gln Pro His Ile Val Asn Tyr Leu  
 290 295 300

Thr Glu Asn Pro His Lys Lys Ala Asp Met Arg Arg Gln Asp Ser Arg  
 305 310 315 320

Gly Asn Thr Val Leu His Ala Leu Val Ala Ile Ala Asp Asn Thr Arg  
 325 330 335

Glu Asn Thr Lys Phe Val Thr Lys Met Tyr Asp Leu Leu Leu Leu Lys  
 340 345 350

Cys Ser Arg Leu Phe Pro Asp Ser Asn Leu Glu Thr Val Leu Asn Asn  
 355 360 365

Asp Gly Leu Ser Pro Leu Met Met Ala Ala Lys Thr Gly Lys Ile Gly  
 370 375 380

Val Phe Gln His Ile Ile Arg Arg Glu Val Thr Asp Glu Asp Thr Arg  
 385 390 395 400

His Leu Ser Arg Lys Phe Lys Asp Trp Ala Tyr Gly Pro Val Tyr Ser  
 405 410 415

Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr Cys Gly Glu Glu Val Ser  
 420 425 430



Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg His Glu  
435 440 445

Met Leu Ala Val Glu Pro Ile Asn Glu Leu Leu Arg Asp Lys Trp Arg  
450 455 460

Lys Phe Gly Ala Val Ser Phe Tyr Ile Asn Val Val Pro Tyr Leu Cys  
465 470 475 480

Ala Met Val Ile Phe Thr Leu Thr Ala Tyr Tyr Gln Pro Leu Glu Gly  
485 490 495

Thr Pro Pro Tyr Pro Tyr Arg Thr Thr Val Asp Tyr Leu Arg Leu Ala  
500 505 510

Gly Glu Val Ile Thr Leu Phe Thr Gly Val Leu Phe Phe Phe Thr Ser  
515 520 525

Ile Lys Asp Leu Phe Thr Lys Lys Cys Pro Gly Val Asn Ser Leu Phe  
530 535 540

Val Asp Gly Ser Phe Gln Leu Leu Tyr Phe Ile Tyr Ser Val Leu Val  
545 550 555 560

Val Val Ser Ala Ala Leu Tyr Leu Ala Gly Ile Glu Ala Tyr Leu Ala  
565 570 575

Val Met Val Phe Ala Leu Val Leu Gly Trp Met Asn Ala Leu Tyr Phe  
580 585 590

Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr Ser Ile Met Ile Gln Lys  
595 600 605

Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu Leu Val Tyr Leu Leu Phe  
610 615 620

Met Ile Gly Tyr Ala Ser Ala Leu Val Thr Leu Leu Asn Pro Cys Thr  
625 630 635 640

Asn Met Lys Val Cys Asp Glu Asp Gln Ser Asn Cys Thr Val Pro Thr  
645 650 655

Tyr Pro Ala Cys Arg Asp Ser Glu Thr Phe Ser Ala Phe Leu Leu Asp  
660 665 670

Leu Phe Lys Leu Thr Ile Gly Met Gly Asp Leu Glu Met Leu Ser Ser  
675 680 685

Ala Lys Tyr Pro Val Val Phe Ile Leu Leu Leu Val Thr Tyr Ile Ile  
690 695 700

Leu Thr Phe Val Leu Leu Leu Asn Met Leu Ile Ala Leu Met Gly Glu  
705 710 715 720

Thr Val Gly Gln Val Ser Lys Glu Ser Lys His Ile Trp Lys Leu Gln  
725 730 735

Trp Ala Thr Thr Ile Leu Asp Ile Glu Arg Ser Phe Pro Val Phe Leu  
740 745 750

Arg Lys Ala Phe Arg Ser Gly Glu Met Val Thr Val Gly Lys Ser Ser  
755 760 765

Asp Gly Thr Pro Asp Arg Arg Trp Cys Phe Arg Val Asp Glu Val Asn  
770 775 780

Trp Ser His Trp Asn Gln Asn Leu Gly Ile Ile Asn Glu Asp Pro Gly  
785 790 795 800

Ser Glu Ile Tyr Gln Tyr Tyr Gly Phe Ser His Thr Val Gly Arg Leu  
805 810 815

Arg Arg Asp Arg Trp Ser Ser Val Val Pro Arg Val Val Glu Leu Asn  
820 825 830

Lys Asn Ser Ser Ala Asp Glu Val Val Val Pro Leu Asp Asn Leu Gly  
835 840 845

Asn Pro Asn Cys Asp Gly His Gln Gln Gly Tyr Ala Pro Lys Trp Arg  
850 855 860

Thr Asp Asp Ala Pro Leu  
865 870

<211> 3188  
<212> DNA  
<213> Mus musculus

<400> 14

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| agtatggcag atcctggtga tgggtccccgt gcagcgcctg gggaggtggc tgagccccct | 120  |
| ggagatgaga gtggtacctc tgggtggggag gccttcccc tctcttccct ggccaatctg  | 180  |
| tttgaagggg aagaaagctc ctacttctct tatccccggt ggactgctag ccgccctgct  | 240  |
| ggccctggcg atggacgtcc aaacctgcgt atgaagtctg gcaggagcgc tttccgcaag  | 300  |
| ggggttccca accccattga cctgttggag tccaccctgt acgagtcctc agtagtgcct  | 360  |
| gggccaaga aagcgcccat ggattccttg ttcgactacg gcacttaccg tcaccacccc   | 420  |
| agtgacaaca agagatggag gagaaaggtc gtggagaagc agccacagag ccccaaagct  | 480  |
| cctgcacccc agccaccccc catcctcaaa gtcttcaatc ggcccatcct ctttgacatt  | 540  |
| gtgtcccggt gctccactgc ggacctagat ggactgctct ccttcttgtt gaccacaag   | 600  |
| aagcgcctga ctgatgagga gttccgggag ccgtccacgg ggaagacctg cctgccaag   | 660  |
| gcgctgctga acttaagcaa cgggcgcaac gacaccatcc cgggtgttgct ggacattgcg | 720  |
| gagcgcaccg gcaacatgcg tgaattcatc aactcgccct tcagagacat ctactaccga  | 780  |
| ggccagacat ccctgcacat tgccatcgaa cggcgtgca agcactacgt ggagctgctg   | 840  |
| gtggcccagg gagccgacgt gcacgcccag gcccgcggcc gcttcttcca gccaaggat   | 900  |
| gagggaggct acttctactt tggggagctg cccttgtccc tggcagcctg caccaaccag  | 960  |
| ccgcacatcg tcaactacct gacagagaac cctcacaaga aagctgacat gaggcgacag  | 1020 |
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| ctctacgacc tctcctccct ggacacatgc ggggaggagg tgtccgtgct ggagatcctg  | 1380 |
| gtgtacaaca gcaagatcga gaaccgcat gagatgctgg ctgtagagcc cattaacgaa   | 1440 |
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| gtgctgggtg ttgtctctgc ggcgtcttac ctggctggga tcgaggccta cctggctgtg  | 1800 |
| atggtctttg ccctggtcct gggctggatg aatgcgctgt acttcacgcg cgggttgaag  | 1860 |
| ctgacgggga cctacagcat catgattcag aagatcctct tcaaagacct cttccgcttt  | 1920 |
| ctgcttgtgt acctgctctt catgatcggc tatgcctcag ccctggtcac cctcctgaat  | 1980 |
| ccgtgcacca acatgaaggt ctgtgacgag gaccagagca actgcacggt gccacgtat   | 2040 |
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| gacctggga agagtgaaat ctaccagtac tatggcttct cccacaccgt ggggcgctt    | 2520 |
| cgtagggatc gttggctctc ggtggtgccc cgcgtagtgg agctgaacaa gaactcaagc  | 2580 |
| gcagatgaag tgggtggtacc cctggataac ctagggaacc ccaactgtga cggccaccag | 2640 |
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| ggcggggctc ctggctacct gtctcgctcg ctcccatgga gtcacctaag ccagcacaag  | 2940 |
| gcccctctcc tcgaaaggct caggcccat cctcttgtg tattatttat tgctctctc     | 3000 |
| aggaaaatgg ggtggcagga gtccaccgc ggctggaacc tggccagggc tgaagctcat   | 3060 |
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Thr Pro Ser Pro Ala Glu Pro Ser Arg Gly Pro Pro Gly Ala Gly Asp  
35 40 45

Gly Lys Gln Asn Leu Arg Met Lys Phe His Gly Ala Phe Arg Lys Gly  
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Pro Pro Lys Pro Met Glu Leu Leu Glu Ser Thr Ile Tyr Glu Ser Ser  
65 70 75 80

Val Val Pro Ala Pro Lys Lys Ala Pro Met Asp Ser Leu Phe Asp Tyr  
85 90 95

Gly Thr Tyr Arg Gln His Pro Ser Glu Asn Lys Arg Trp Arg Arg Arg  
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Val Val Glu Lys Pro Val Ala Gly Thr Lys Gly Pro Ala Pro Asn Pro  
115 120 125

Pro Pro Val Leu Lys Val Phe Asn Arg Pro Ile Leu Phe Asp Ile Val  
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Ser Arg Gly Ser Pro Asp Gly Leu Glu Gly Leu Leu Ser Phe Leu Leu  
145 150 155 160

Thr His Lys Lys Arg Leu Thr Asp Glu Glu Phe Arg Glu Pro Ser Thr  
165 170 175

Gly Lys Thr Cys Leu Pro Lys Ala Leu Leu Asn Leu Ser Ala Gly Arg  
180 185 190

Asn Asp Thr Ile Pro Ile Leu Leu Asp Ile Ala Glu Lys Thr Gly Asn  
195 200 205

Met Arg Glu Phe Ile Asn Ser Pro Phe Arg Asp Val Tyr Tyr Arg Gly  
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Gln Thr Ala Leu His Ile Ala Ile Glu Arg Arg Cys Lys His Tyr Val  
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Glu Leu Leu Val Glu Lys Gly Ala Asp Val His Ala Gln Ala Arg Gly  
245 250 255

Arg Phe Phe Gln Pro Lys Asp Glu Gly Gly Tyr Phe Tyr Phe Gly Glu  
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Leu Pro Leu Ser Leu Ala Ala Cys Thr Asn Gln Pro His Ile Val His  
275 280 285

Tyr Leu Thr Glu Asn Gly His Lys Gln Ala Asp Leu Arg Arg Gln Asp  
290 295 300

Ser Arg Gly Asn Thr Val Leu His Ala Leu Val Ala Ile Ala Asp Asn  
305 310 315 320

Thr Arg Glu Asn Thr Lys Phe Val Thr Lys Met Tyr Asp Leu Leu Leu  
325 330 335

Ile Lys Cys Ala Lys Leu Phe Pro Asp Thr Asn Leu Glu Ala Leu Leu  
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Asn Asn Asp Gly Leu Ser Pro Leu Met Met Ala Ala Lys Thr Gly Lys  
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Ile Gly Ile Phe Gln His Ile Ile Arg Arg Glu Ile Ala Asp Glu Asp  
370 375 380

Val Arg His Leu Ser Arg Lys Phe Lys Asp Trp Ala Tyr Gly Pro Val  
385 390 395 400

Tyr Ser Ser Leu Tyr Asp Leu Ser Ser Leu Asp Thr Cys Gly Glu Glu  
405 410 415

Val Ser Val Leu Glu Ile Leu Val Tyr Asn Ser Lys Ile Glu Asn Arg  
420 425 430

His Glu Met Leu Ala Val Glu Pro Ile Asn Glu Leu Leu Arg Asp Lys  
435 440 445

Trp Arg Lys Phe Gly Ala Val Ser Phe Tyr Ile Ser Val Val Ser Tyr  
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Leu Cys Ala Met Ile Ile Phe Thr Leu Ile Ala Tyr Tyr Arg Pro Met  
465 470 475 480

Glu Gly Pro Pro Pro Tyr Pro Tyr Thr Thr Thr Ile Asp Tyr Leu Arg  
485 490 495

Leu Ala Gly Glu Ile Ile Thr Leu Leu Thr Gly Ile Leu Phe Phe Phe  
500 505 510

Ser Asn Ile Lys Asp Leu Phe Met Lys Lys Cys Pro Gly Val Asn Ser  
515 520 525

Phe Phe Ile Asp Gly Ser Phe Gln Leu Leu Tyr Phe Ile Tyr Ser Val  
530 535 540

Leu Val Ile Val Thr Ala Gly Leu Tyr Leu Gly Gly Val Glu Ala Tyr  
545 550 555 560

Leu Ala Val Met Val Phe Ala Leu Val Leu Gly Trp Met Asn Ala Leu  
565 570 575

Tyr Phe Thr Arg Gly Leu Lys Leu Thr Gly Thr Tyr Ser Ile Met Ile  
580 585 590

Gln Lys Ile Leu Phe Lys Asp Leu Phe Arg Phe Leu Leu Val Tyr Leu  
595 600 605

Leu Phe Met Ile Gly Tyr Ala Ser Ala Leu Val Ser Leu Leu Asn Pro  
610 615 620

Cys Pro Ser Ser Glu Ser Cys Ser Glu Asp His Ser Asn Cys Thr Leu  
625 630 635 640

Pro Thr Tyr Pro Ser Cys Arg Asp Ser Gln Thr Phe Ser Thr Phe Leu  
645 650 655

Leu Asp Leu Phe Lys Leu Thr Ile Gly Met Gly Asp Leu Glu Met Leu  
660 665 670

Glu Ser Ala Lys Tyr Pro Gly Val Phe Ile Ile Leu Leu Val Thr Tyr  
675 680 685

Ile Ile Leu Thr Phe Val Leu Leu Leu Asn Met Leu Ile Ala Leu Met  
690 695 700

Gly Glu Thr Val Gly Gln Val Ser Lys Glu Ser Lys His Ile Trp Lys  
705 710 715 720

Leu Gln Trp Ala Thr Thr Ile Leu Asp Ile Glu Arg Ser Phe Pro Leu  
725 730 735

Phe Leu Arg Arg Ala Phe Arg Ser Gly Glu Met Val Thr Val Gly Lys  
740 745 750

Gly Thr Asp Gly Thr Pro Asp Arg Arg Trp Cys Phe Arg Val Asp Glu  
755 760 765

Val Asn Trp Ser His Trp Asn Gln Asn Leu Gly Ile Ile Ser Glu Asp  
770 775 780

Pro Gly Lys Ser Asp Thr Tyr Gln Tyr Tyr Gly Phe Ser His Thr Val  
785 790 795 800

Gly Arg Leu Arg Arg Asp Arg Trp Ser Thr Val Val Pro Arg Val Val  
805 810 815

Glu Leu Asn Lys Ser Cys Pro Thr Glu Asp Val Val Val Pro Leu Gly  
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Ser Ser Pro Leu  
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<400> 16

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| cggggagtat | ggcagacccc | gaagaccccc | gtgatgctgg | ggacgtgctg | ggggatgact | 180  |
| ccttcccgtc | ctcctcgctg | gccaacctgt | ttgaggtgga | ggacaccccg | tctcctgctg | 240  |
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| agacgtgcct | gccccaaagc | ctgctcaacc | tgagtgtctg | ccggaatgac | accatcccca | 720  |
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| gtgatgtcta | ctacagaggt | cagacagcgc | tgcacatcgc | cattgagcgc | cgctgcaagc | 840  |
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| ccgcctgcac | caaccagccc | cacatcgctc | actatctgac | ggagaatggg | cacaagcagg | 1020 |
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| tcttcatgaa gaagtgccca ggtgtgaact cgttcttcat cgatggctca tttcagctgc  | 1740 |
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| aggcttacct ggctgtcatg gtctttgctt tggctcctggg ctggatgaat gcgctctact | 1860 |
| tcacgcgagg gctcaagctg acggggacct acagcatcat gatccagaag atcctcttca  | 1920 |
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| tgggtgtccct cctgaacccg tgtcccagca gcgagtcctg cagtgaggat cactccaact | 2040 |
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| gggggggaaa gatattatcg actatttatt tcataataaa gagcagccac cacgaaaaaa  | 3000 |
| aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa   | 3060 |
| aaaaaaaaa  | 3068 |

<210> 17  
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 <213> Rattus norvegicus

<400> 17

Ala Gly Glu Lys Pro Pro Arg Leu Tyr Asp Arg Arg Ser Ile Phe Asp

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 1   | 5   | 10  | 15  |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ala | Val | Ala | Gln | Ser | Asn | Cys | Gln | Glu | Leu | Glu | Ser | Leu | Leu | Pro | Phe |  |  |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Leu | Gln | Arg | Ser | Lys | Lys | Arg | Leu | Thr | Asp | Ser | Glu | Phe | Lys | Asp | Pro |  |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |  |
| Glu | Thr | Gly | Lys | Thr | Cys | Leu | Leu | Lys | Ala | Met | Leu | Asn | Leu | His | Asn |  |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Gly | Gln | Asn | Asp | Thr | Ile | Ala | Leu | Leu | Leu | Asp | Val | Ala | Arg | Lys | Thr |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |  |
| Asp | Ser | Leu | Lys | Gln | Phe | Val | Asn | Ala | Ser | Tyr | Thr | Asp | Ser | Tyr | Tyr |  |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |  |
| Lys | Gly | Gln | Thr | Ala | Leu | His | Ile | Ala | Ile | Glu | Arg | Arg | Asn | Met | Thr |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Leu | Val | Thr | Leu | Leu | Val | Glu | Asn | Gly | Ala | Asp | Val | Gln | Ala | Ala | Ala |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Asn | Gly | Asp | Phe | Phe | Lys | Lys | Thr | Lys | Gly | Arg | Pro | Gly | Phe | Tyr | Phe |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| Gly | Glu | Leu | Pro | Leu | Ser | Leu | Ala | Ala | Cys | Thr | Asn | Gln | Leu | Ala | Ile |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |
| Val | Lys | Phe | Leu | Leu | Gln | Asn | Ser | Trp | Gln | Pro | Ala | Asp | Ile | Ser | Ala |  |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |  |
| Arg | Asp | Ser | Val | Gly | Asn | Thr | Val | Leu | His | Ala | Leu | Val | Glu | Val | Ala |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |
| Asp | Asn | Thr | Val | Asp | Asn | Thr | Lys | Phe | Val | Thr | Ser | Met | Tyr | Asn | Glu |  |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |
| Ile | Leu | Ile | Leu | Gly | Ala | Lys | Leu | His | Pro | Thr | Leu | Lys | Leu | Glu | Glu |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |
| Ile | Thr | Asn | Arg | Lys | Gly | Leu | Thr | Pro | Leu | Ala | Leu | Ala | Ala | Ser | Ser |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |

Gly Lys Ile Gly Val Leu Ala Tyr Ile Leu Gln Arg Glu Ile His Glu  
245 250 255

Pro Glu Cys Arg His Leu Ser Arg Lys Phe Thr Glu Trp Ala Tyr Gly  
260 265 270

Pro Val His Ser Ser Leu Tyr Asp Leu Ser Cys Ile Asp Thr Cys Glu  
275 280 285

Lys Asn Ser Val Leu Glu Val Ile Ala Tyr Ser Ser Ser Glu Thr Pro  
290 295 300

Asn Arg His Asp Met Leu Leu Val Glu Pro Leu Asn Arg Leu Leu Gln  
305 310 315 320

Asp Lys Trp Asp Arg Phe Val Lys Arg Ile Phe Tyr Phe Asn Phe Phe  
325 330 335

Val Tyr Cys Leu Tyr Met Ile Ile Phe Thr Ala Ala Ala Tyr Tyr Arg  
340 345 350

Pro Val Glu Gly Leu Pro Pro Tyr Lys Leu Lys Asn Thr Val Gly Asp  
355 360 365

Tyr Arg Val Thr Gly Glu Ile Leu Ser Val Ser Gly Gly Val Tyr Phe  
370 375 380

Phe Phe Arg Gly Ile Gln Tyr Phe Leu Gln Arg Arg Pro Ser Leu Lys  
385 390 395 400

Ser Leu Phe Val Asp Ser Tyr Ser Glu Ile Leu Phe Phe Val Gln Ser  
405 410 415

Leu Phe Met Leu Val Ser Val Val Leu Tyr Phe Ser Gln Arg Lys Glu  
420 425 430

Tyr Val Ala Ser Met Val Phe Ser Leu Ala Met Gly Trp Thr Asn Met  
435 440 445

Leu Tyr Tyr Thr Arg Gly Phe Gln Gln Met Gly Ile Tyr Ala Val Met  
450 455 460

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Glu | Lys | Met | Ile | Leu | Arg | Asp | Leu | Cys | Arg | Phe | Met | Phe | Val | Tyr | 465 | 470 | 475 | 480 |
| Leu | Val | Phe | Leu | Phe | Gly | Phe | Ser | Thr | Ala | Val | Val | Thr | Leu | Ile | Glu | 485 | 490 | 495 |     |
| Asp | Gly | Lys | Asn | Asn | Ser | Leu | Pro | Met | Glu | Ser | Thr | Pro | His | Lys | Cys | 500 | 505 | 510 |     |
| Arg | Gly | Ser | Ala | Cys | Lys | Gly | Asn | Ser | Tyr | Asn | Ser | Leu | Tyr | Ser | Thr | 515 | 520 | 525 |     |
| Cys | Leu | Glu | Leu | Phe | Lys | Phe | Thr | Ile | Gly | Met | Gly | Asp | Leu | Glu | Phe | 530 | 535 | 540 |     |
| Thr | Glu | Asn | Tyr | Asp | Phe | Lys | Ala | Val | Phe | Ile | Ile | Leu | Leu | Leu | Ala | 545 | 550 | 555 | 560 |
| Tyr | Val | Ile | Leu | Thr | Tyr | Ile | Leu | Leu | Leu | Asn | Met | Leu | Ile | Ala | Leu | 565 | 570 | 575 |     |
| Met | Gly | Glu | Thr | Val | Asn | Lys | Ile | Ala | Gln | Glu | Ser | Lys | Asn | Ile | Trp | 580 | 585 | 590 |     |
| Lys | Leu | Gln | Arg | Ala | Ile | Thr | Ile | Leu | Asp | Thr | Glu | Lys | Ser | Phe | Leu | 595 | 600 | 605 |     |
| Lys | Cys | Met | Arg | Lys | Ala | Phe | Arg | Ser | Gly | Lys | Leu | Leu | Gln | Val | Gly | 610 | 615 | 620 |     |
| Phe | Thr | Pro | Asp | Gly | Lys | Asp | Asp | Tyr | Arg | Trp | Cys | Phe | Arg | Val | Asp | 625 | 630 | 635 | 640 |
| Glu | Val | Asn | Trp | Thr | Thr | Trp | Asn | Thr | Asn | Val | Gly | Ile | Ile | Asn | Glu | 645 | 650 | 655 |     |
| Asp | Pro | Gly | Asn | Cys | Gly | Val | Lys | Arg | Thr | Leu | Ser | Phe | Ser | Leu | Arg | 660 | 665 | 670 |     |
| Ser | Gly | Arg | Val | Ser | Gly | Arg | Asn | Trp | Lys | Asn | Pro | Leu | Leu | Arg | Asp | 675 | 680 | 685 |     |

Ala Ser Thr Arg Asp Arg His Ala Thr Gln Gln Glu Glu Val Gln Leu  
690 695 700

Lys His Tyr  
705

<210> 18  
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<213> Rattus norvegicus

<400> 18

Asp Arg Phe Asp Arg Asp Arg Leu Phe Ser Val Val Ser Arg Gly Val  
1 5 10 15

Pro Glu Glu Leu Thr Gly Leu Leu Glu Tyr Leu Arg Trp Asn Ser Lys  
20 25 30

Tyr Leu Thr Asp Ser Ala Tyr Thr Glu Gly Ser Thr Gly Lys Thr Cys  
35 40 45

Leu Met Lys Ala Val Leu Asn Leu Gln Asp Gly Val Asn Ala Cys Ile  
50 55 60

Met Pro Leu Leu Gln Ile Asp Lys Asp Ser Gly Asn Pro Lys Pro Leu  
65 70 75 80

Val Asn Ala Gln Cys Thr Asp Glu Phe Tyr Gln Gly His Ser Ala Leu  
85 90 95

His Ile Ala Ile Glu Lys Arg Ser Leu Gln Cys Val Lys Leu Leu Val  
100 105 110

Glu Asn Gly Ala Asp Val His Leu Arg Ala Cys Gly Arg Phe Phe Gln  
115 120 125

Lys His Gln Gly Thr Cys Phe Tyr Phe Gly Glu Leu Pro Leu Ser Leu  
130 135 140

Ala Ala Cys Thr Lys Gln Trp Asp Val Val Thr Tyr Leu Leu Glu Asn  
145 150 155 160

Pro His Gln Pro Ala Ser Leu Glu Ala Thr Asp Ser Leu Gly Asn Thr  
165 170 175

Val Leu His Ala Leu Val Met Ile Ala Asp Asn Ser Pro Glu Asn Ser  
180 185 190

Ala Leu Val Ile His Met Tyr Asp Gly Leu Leu Gln Met Gly Ala Arg  
195 200 205

Leu Cys Pro Thr Val Gln Leu Glu Glu Ile Ser Asn His Gln Gly Leu  
210 215 220

Thr Pro Leu Lys Leu Ala Ala Lys Glu Gly Lys Ile Glu Ile Phe Arg  
225 230 235 240

His Ile Leu Gln Arg Glu Phe Ser Gly Pro Tyr Gln Pro Leu Ser Arg  
245 250 255

Lys Phe Thr Glu Trp Cys Tyr Gly Pro Val Arg Val Ser Leu Tyr Asp  
260 265 270

Leu Ser Ser Val Asp Ser Trp Glu Lys Asn Ser Val Leu Glu Ile Ile  
275 280 285

Ala Phe His Cys Lys Ser Pro Asn Arg His Arg Met Val Val Leu Glu  
290 295 300

Pro Leu Asn Lys Leu Leu Gln Glu Lys Trp Asp Arg Leu Val Ser Arg  
305 310 315 320

Phe Phe Phe Asn Phe Ala Cys Tyr Leu Val Tyr Met Phe Ile Phe Thr  
325 330 335

Val Val Ala Tyr His Gln Pro Ser Leu Asp Gln Pro Pro Ser Ser Lys  
340 345 350

Ala Thr Phe Gly Glu Ser Met Leu Leu Leu Gly His Ile Leu Ile Leu  
355 360 365

Leu Gly Gly Ile Tyr Leu Leu Leu Gly Gln Leu Trp Tyr Phe Trp Arg  
370 375 380

Arg Leu Phe Ile Trp Ile Ser Phe Met Asp Ser Tyr Phe Glu Ile Leu  
385 390 395 400

Phe Leu Leu Gln Ala Leu Leu Thr Val Leu Ser Gln Val Leu Arg Phe  
 405 410 415

Met Glu Thr Glu Trp Tyr Leu Pro Leu Leu Val Leu Ser Leu Val Leu  
 420 425 430

Gly Trp Leu Asn Leu Leu Tyr Tyr Thr Arg Gly Phe Gln His Thr Gly  
 435 440 445

Ile Tyr Ser Val Met Ile Gln Lys Val Ile Leu Arg Asp Leu Arg Phe  
 450 455 460

Leu Leu Val Tyr Leu Val Phe Leu Phe Gly Phe Ala Val Ala Leu Val  
 465 470 475 480

Ser Leu Ser Arg Glu Ala Arg Ser Pro Lys Ala Pro Glu Asp Asn Asn  
 485 490 495

Ser Thr Val Thr Glu Gln Pro Thr Val Gly Gln Glu Pro Tyr Arg Ser  
 500 505 510

Ile Leu Asp Ala Ser Leu Glu Leu Phe Lys Phe Thr Ile Gly Met Gly  
 515 520 525

Glu Leu Ala Phe Gln Glu Gln Leu Arg Phe Arg Gly Val Val Leu Leu  
 530 535 540

Leu Leu Leu Ala Tyr Val Leu Leu Thr Tyr Val Leu Leu Leu Asn Met  
 545 550 555 560

Leu Ile Ala Leu Met Ser Glu Thr Val Asn His Val Ala Asp Asn Ser  
 565 570 575

Trp Ser Ile Trp Lys Leu Gln Lys Ala Ile Ser Val Leu Glu Met Glu  
 580 585 590

Asn Gly Tyr Trp Trp Cys Arg Arg Lys Lys His Arg Glu Gly Arg Leu  
 595 600 605

Leu Lys Val Gly Thr Arg Gly Asp Gln Thr Pro Asp Glu Arg Trp Cys  
 610 615 620



Phe Arg Val Glu Glu Val Asn Trp Ala Ala Trp Glu Lys Thr Leu Pro  
625 630 635 640

Thr Leu Ser Glu Asp Pro Ser Gly Pro Gly Ile Thr Gly Asn Lys Lys  
645 650 655

Asn Pro Thr Ser Ile Lys Pro Gly Lys  
660 665

<210> 19  
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<400> 19

Arg Phe Lys Glu His Tyr Ala Leu Trp Lys Leu Asn Lys Arg Gly Val  
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Glu Gly Glu Asn Leu Ile His Leu Leu Leu Asn Arg Glu Gln Gln Val  
20 25 30

Cys Tyr Glu Ile Ala Arg Ile Leu Leu Lys Arg Phe Pro Gly Met Ala  
35 40 45

Asn Asp Ile Tyr Leu Gly Asp Glu Gln Phe Gly Gln Ser Ala Leu His  
50 55 60

Leu Ala Ile Val His Asp Asp Tyr Glu Thr Val Ser Leu Leu Leu Asn  
65 70 75 80

Ser Lys Ala Asp Val Asn Ala Arg Ala Cys Gly Asn Phe Phe Leu Pro  
85 90 95

Glu Asp Phe Lys Leu Thr Asn Lys Ile Thr Asp Tyr Gln Gly Tyr Ala  
100 105 110

Tyr Tyr Gly Glu Tyr Pro Leu Ala Phe Ala Ala Cys Phe Gly Asn Lys  
115 120 125

Asp Ile Tyr Asp Leu Leu Ile Gln Phe Gly Ala Asn Pro Asn Leu Gln  
130 135 140

Asp Ser Phe Gly Asn Thr Ile Leu His Met Cys Val Ile Asn Tyr Ser  
145 150 155 160

Ser Ser Met Tyr Ser Tyr Ala Val Arg His Trp Ala Lys Pro Ala Asp  
 165 170 175

Pro His Val Val Asn His Ala Gly Phe Thr Pro Leu Thr Leu Ala Thr  
 180 185 190

Lys Leu Gly Arg Lys Gln Ile Phe Glu Glu Met Leu Glu Ile Met Lys  
 195 200 205

Val Glu Phe Trp Arg Phe Ser Asp Met Thr Cys Ser Ala Tyr Pro Leu  
 210 215 220

Asn Thr Leu Asp Thr Ile Gln Pro Asp Gly Ser Thr Asn Tyr Asp Ser  
 225 230 235 240

Ala Leu Met Thr Val Ile Asn Gly Ser Thr Pro Glu His Leu Asp Met  
 245 250 255

Ile Gly Ser Glu Val Ile Gln Arg Leu Leu Ala Asp Lys Trp Lys Ala  
 260 265 270

Phe Ala Gln Arg Lys Leu Ile Glu Arg Leu Val Leu Leu Ile Val Gln  
 275 280 285

Leu Ile Thr Leu Ser Ile Val Val Tyr Ile Arg Pro Thr Glu Leu Pro  
 290 295 300

Arg Leu Tyr Met Glu Asp Pro Gln Trp Asp Asp Tyr Ile Arg Thr Ala  
 305 310 315 320

Cys Glu Leu Leu Thr Ile Leu Asn Cys Ile Phe Phe Val Gly Tyr Gln  
 325 330 335

Gln Leu Gly Glu Ile Arg Thr Gln Gly Met Arg Gly Tyr Leu Arg Asn  
 340 345 350

Leu Lys Thr Ala Pro Ala Lys Ala Val Phe Cys Ile Ala Asn Leu Phe  
 355 360 365

Leu Leu Leu Cys Ile Pro Phe Arg Leu Met Lys Lys His Glu Ile Glu  
 370 375 380

Glu Ala Leu Phe Val Phe Ala Leu Pro Gly Ser Trp Ile Phe Leu Leu  
385 390 395 400

Phe Phe Ala Arg Ser Ala Lys Leu Thr Gly Pro Phe Val Gln Met Ile  
405 410 415

Tyr Ser Met Ile Ala Gly Asp Met Ile Arg Phe Ala Ile Ile Ser Ala  
420 425 430

Ile Phe Leu Val Ser Phe Ser Gln Val Phe Tyr Phe Val Gly Lys Asp  
435 440 445

Met Asp Ala Lys Gln Lys Leu Glu Asp Thr Asn Pro His Ala Cys Arg  
450 455 460

Ile Ser Gly Tyr Thr Ile Tyr Thr Tyr Asn Thr Phe Pro Glu Thr Phe  
465 470 475 480

Ile Thr Leu Phe Arg Ala Ser Met Gly Gly Tyr Asp Tyr Glu Glu Phe  
485 490 495

Ser Cys Ala Asn Tyr Gln Ala Leu Thr Lys Thr Leu Phe Val Leu Tyr  
500 505 510

Met Phe Val Met Pro Ile Met Met Ile Asn Ile Leu Ile Ala Met Met  
515 520 525

Gly Asn Thr Tyr Thr Thr Val Ile Ala Gln Ala Glu Lys Ala Trp Arg  
530 535 540

Gln Gln Tyr Ala Gln Ile Val Met Val Leu Glu Arg Ser Val Gly Lys  
545 550 555 560

Glu Arg Leu Ala Ala Ser Gln Leu Glu Tyr Ser Ile Arg Leu Asp Gln  
565 570 575

Glu Gly Ser Ser Gly Met Glu Val Arg Gly Leu Met Val Ile Lys Gln  
580 585 590

Thr Lys Lys Thr Arg Ala Arg Gln Arg Lys Gln Ala Ile Tyr Asn Trp  
595 600 605

Lys Thr Ile Gly Arg Lys Val Ile His Thr Ile Asp Lys Val Gly Thr  
610 615 620

Glu Gln Ala Val Leu Leu Leu His Gly His Asp Arg Leu Asp Arg Val  
625 630 635 640

Tyr Glu Asp His

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<212> PRT  
<213> drosophila melanogaster

<400> 20

Pro Leu Gly Lys Trp Glu Asp His Lys Ala Cys Trp Gln Met Gln Tyr  
1 5 10 15

Arg Gly Ala Leu Gly Glu Ser Leu Leu His Val Leu Ile Ile Cys Asp  
20 25 30

Ser Lys Val His Thr Lys Leu Ala Arg Val Leu Leu Arg Val Phe Pro  
35 40 45

Asn Leu Ala Leu Asp Val Met Glu Gly Glu Glu Tyr Leu Gly Ala Ser  
50 55 60

Ala Leu His Leu Ser Ile Ala Tyr Ser Asn Asn Glu Leu Val Ala Asp  
65 70 75 80

Leu Ile Glu Ala Gly Ala Asp Ile His Gln Arg Ala Ile Gly Ser Phe  
85 90 95

Phe Leu Pro Arg Asp Gln Gln Arg Ala Asn Tyr Met Gly Glu Tyr Pro  
100 105 110

Leu Ala Trp Ala Ala Cys Cys Ala Asn Glu Ser Val Tyr Asn Leu Leu  
115 120 125

Val Asp Cys Gly Ser Asp Pro Asp Ala Gln Asp Ser Phe Gly Asn Met  
130 135 140

Ile Leu His Met Val Val Val Cys Asp Lys Leu Asp Met Phe Gly Tyr  
145 150 155 160

Ala Leu Arg His Pro Lys Thr Pro Ala Lys Asn Gly Ile Val Asn Gln  
165 170 175

Thr Gly Leu Thr Pro Leu Thr Leu Ala Cys Lys Leu Gly Arg Ala Glu  
180 185 190

Val Phe Arg Glu Met Leu Glu Leu Ser Ala Arg Glu Phe Trp Arg Tyr  
195 200 205

Ser Asn Ile Thr Cys Ser Gly Tyr Pro Leu Asn Ala Leu Asp Thr Leu  
210 215 220

Leu Pro Asp Gly Arg Thr Asn Trp Asn Ser Ala Leu Phe Ile Ile Leu  
225 230 235 240

Asn Gly Thr Lys Pro Glu His Leu Asp Met Leu Asp Gly Gly Ile Ile  
245 250 255

Gln Arg Leu Leu Glu Glu Lys Trp Lys Thr Phe Ala Gln Asn Gln Phe  
260 265 270

Leu Lys Arg Leu Leu Ile Leu Ser Thr His Leu Leu Cys Leu Ser Val  
275 280 285

Ser Val Tyr Leu Arg Pro Ala His Asp Gly Glu Ala Glu Asp Glu Asp  
290 295 300

Ser Glu Gly Ser Asp Ala Ser Ala Ala Ala Leu Leu Thr Leu Val Gly  
305 310 315 320

Val Leu Ser Tyr Val Ile Phe Gln Gln Gly Asp Glu Ile Lys Asn Gln  
325 330 335

Gly Leu Ser Ala Phe Leu Lys Gln Leu Ser His Ala Pro Ala Lys Ala  
340 345 350

Ile Phe Leu Phe Ser Asn Leu Leu Ile Leu Ala Cys Ile Pro Phe Arg  
355 360 365

Leu Ile Gly Asp Thr Asp Thr Glu Glu Ala Ile Leu Ile Phe Ala Val  
370 375 380

Pro Gly Ser Trp Phe Leu Leu Met Phe Phe Ala Gly Ala Ile Arg Leu  
385 390 395 400

Thr Gly Pro Phe Val Thr Met Ile Tyr Ser Met Ile Thr Gly Asp Met  
405 410 415

Phe Thr Phe Gly Ile Ile Tyr Cys Ile Val Leu Cys Gly Phe Ser Gln  
420 425 430

Ala Phe Tyr Phe Leu Tyr Lys Gly His Pro Gln Val Gln Ser Thr Met  
435 440 445

Phe Asn Thr Tyr Thr Ser Thr Trp Met Ala Leu Phe Gln Thr Thr Leu  
450 455 460

Gly Asp Tyr Asn Tyr Pro Asp Leu Asn Gln Thr Thr Tyr Pro Asn Leu  
465 470 475 480

Ser Lys Thr Val Phe Val Ile Phe Met Ile Phe Val Pro Ile Leu Leu  
485 490 495

Leu Asn Met Leu Ile Ala Met Met Gly Asn Thr Tyr Val Thr Val Ile  
500 505 510

Glu Gln Ser Glu Lys Glu Trp Met Lys Gln Trp Ala Lys Ile Val Val  
515 520 525

Thr Leu Glu Arg Ala Val Pro Gln Ala Asp Ala Lys Gly Tyr Leu Glu  
530 535 540

Ala Tyr Ser Ile Pro Leu Gly Pro Ser Asp Asp Ser Gly Phe Glu Val  
545 550 555 560

Arg Gly Val Met Val Ile Lys Ser Lys Ser Lys Thr Arg Ala Lys Gln  
565 570 575

Arg Lys Gly Ala Val Ser Asn Trp Lys Arg Val Gly Arg Val Thr Leu  
580 585 590

Thr Ala Leu Lys Lys Arg Gly Met Thr Gly Glu Glu Met Arg Arg Leu  
595 600 605

Met Trp Gly Arg Ala Ser Ile Ser Ser Pro Val Lys Val Thr Lys Gln  
610 615 620

Lys Leu Lys Asp Pro Tyr Asn Leu His Thr Asp  
625 630 635